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中国植物志黄芪属预报（四）

傅 坤 俊

PRASCURSORES FLORAE ASTRAGALORUM SINENSIUM (IV)

Fu Kun-tsun

四. 密花黄芪亚属

Subgen. **Hypoglottis** Bge. in Mem. Acad. Sci. St. Petersb. VII. 11 (16): 2, 46. 1869; Baker in Hook. f. Fl. Brit. Ind. 2: 123. 1876, p. p.; Boriss. in Schischk. Fl. URSS 12: 246. 1946; P. Y. Fu et Y. A. Chen in Fl. Pl. Herb. Chin. Bor.-or. 5: 87. 1976——Sect. *Hypoglottis* (Bge.) Taub. in Engl. u. Prantl. Nat. Pflanzenfam. III. 3: 291. 1894.

国产4组，18种，1变种。

亚属的模式种： *Astragalus hypoglottis* L.

组 I **灰毛黄芪组**

Sect. I. **Poliothrix** Bge. in Mem. Acad. Sci. St. Petersb. VII. 11(16): 48. 1868 et 15(1): 76. 1869——§ *Poliothrix* (Bge.) Taub. in Engl. u. Prantl. Nat. Pflanzenfam. III. 3: 291. 1894.

Descr. emend.: Caulis plerumque numerous. Stipulae a pe-

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tiolo liberae, inter se plus minusve connatae. Inflorescentiae axillares, dense capitatae vel spicatae. Calyx breviter campanulatus; corollae liberae, deciduae, sordide albae, flavescenti-albidae, violaceae vel purpureae; ovarium sessile vel breviter stipitatum, uniloculare. Legumen calycem haud excedens vel longius, bivalve oligospermum.

修正描述：茎通常多数。托叶与叶柄分离，相互间多少合生。花序腋生，密头形或密穗形。花萼短钟状；花冠凋落，与雄蕊鞘基部分离，白色、淡黄白色，蓝红色或紫红色；子房无柄或具柄，1室。荚果不比花萼长或稍长，2裂片，含少数种子。

国产9种。

组的模式种：*Astragalus leucocephalus* Grah.

1. 坚硬黄芪

Astragalus rigidulus Benth. ex Bge. in Mem. Acad. Sci. St. Petersb. VII. 11(16) : 23. 1868 et 15(1) : 25. 1869; Baker in Hook. f. Fl. Brit. Ind. 2 : 123. 1876; Ni et Li in Enum. Vasc. Pl. Xizang (Tibet) 182. 1980.

产西藏南部及东部；生于山坡草地或河滩砂砾地，海拔3800—5020米。分布于尼泊尔、锡金、不丹。**模式标本**产锡金。

2. 白序黄芪

Astragalus leucocephalus Grah. in. Wall. Cat. no. 5923. nom., ex Benth. in Royle Ill. 198. t. 32(2). 1839—1840; Bge. in Mem. Acad. Sci. St. Petersb. VII. 11(16) : 48.1868 et 15(1) : 76. 1869;Baker in Hook. f. Fl. Brit. Ind. 2 : 128. 1876; id. Journ. Linn. Soc. Bot. 18 : 45. 1881; Rech. in K. Danske. Vid. Selsk. Biol. Skrift. 9(3) : 37. f. 28. 1958 Ali in Nasir et Ali, Fl.West; Paskist. No. 100 : 147. f. 19 (B-G). 1977; Ni et Li in Enumer. Vasc. Pl. Xizang (Tibet) 181. 1980.

产西藏东南部；生于沟边或山坡草地。**模式标本**采自喜马拉雅山区西部。分布于阿富汗、巴基斯坦、印度、尼泊尔及克什米尔地区。

3. 笔直黄芪

Astragalus strictus Grah. ex Benth. in Royle Ill. 198. 1839—1840; Bge. in Mem. Acad. Sci. St. Petersb.VII. 11(16) : 23.1968

et 15(1): 27. 1869; Baker in Hook. f. Fl. Brit. Ind. 2: 124. 1876; Ulbr. in Repert. Nov. Sp. Beih. 12: 418. 1922; Ali in Biologia 7: 41. 1961; id. in Nasir et Ali, Fl. West Pakist. No. 100: 160. 1977; Ni et Li in Enum. Vasc. Pl. Xizang (Tibet) 183. 1980.

产**西藏**南部及东部；生于山坡草地、河边湿地、石砾地、路旁和田边，海拔2900—4600米。分布于锡金、尼泊尔、印度、巴基斯坦及克什米尔地区。**模式标本**产印度。

4. **深绿黄芪**（新种）

Astragalus euchlorus K. T. Fu, sp. nov.

Species *A. leucocephalo* Grah. proxima, sed caulibus glabris; foliolis. 15—25, obovato-oblongis 6—10mm longis sparsioribus euchloris; inflorescentiis dense spicatis pedunculis salum partibus prope spicas pilis adpressis nigris obtectis; corollis albis, vexillis c. 7mm longis, carinis vexillis alisque paullo brevioribus; ovariis stipitatis glabris distinguitur.

Herba perennis atro-virens rhizomate lignoso multicaulis. Caules ascendentes procumbentesve 20—40cm longi glabri angulati. Folia imparipinnata (3)6—10cm longa, 12—14mm longe petiolata glabra; stipulae triangulo-ovatae, 4—5mm longae apice acutae glabrae infra media coalitae; foliola 8—12-juga opposita sparsiora obovato-oblonga (3) 6—10mm longa 2—5mm lata apice rotunda obtusave basi cuneata supra glabra euchlora subtus pilis adpressis sparse obtecta viridula satis breviter petiolulata. Inflorescentiae dense spicatae c. 1.8cm longae; pedunculi ad 19cm longi partibus prope spicas pilis adpressis nigris tecti foliis duplo ulter longiores; bracteae lineari-lanceolatae subulataeve 3—3.5mm longae albo-scariosae nigro-ciliatae. Pedicelli breves vel fere sessili; calycis tubus campanulatus c. 2mm longus pilis adpressis nigris vestitus, dentibus subulatis tubo subaequilongis; corolla alba apice violascentia; vexillum late obovatum, c. 7mm longum, c. 4.5mm latum, apice emarginatum basi attenuatum ungue inconspicuum; alae c. 6.5

mm longae, 3mm longe ungulatae; carinae c. 6mm longae, 3mm longe ungulatae; ovarium 1.6mm longe stipitatum glabrum, stigmate glabro, 7-ovuliferum. Legumen ignoratum.

Sichuan: Muli Zangzu Zizhixian (木里藏族自治县), Ya-zui Luchang-gou, (鸭咀鹿场沟), ad viam, Yang Ya-bin (杨亚滨) 7220 (**Typus** in Herb. Inst. Biol. Chend. Acad. Sin.), VII, 4, 1978.

本种与白序黄芪 *A. leucocephalus* Grah. 接近，但茎无毛；小叶15—25，倒卵状长圆形，长6—10毫米，较疏，深绿色；花序密穗形，总花梗仅接近花序处被黑色贴伏毛；花冠白色，旗瓣长约7毫米，龙骨瓣略短于旗瓣和翼瓣；子房有柄，无毛而有区别。

5. **察雅黄芪**

Astragalus chagyabensis P. C. Li et Ni in Acta Phytotax. Sin. 18 (3): 368. 1980; id. Enum. Vasc. Pl. Xizang (Tibet) 180. 1980.

产**西藏**东部；生于沙地或沟边，海拔3600米。**模式标本**采自察雅。分布于印度、苏联。

6. **哈巴山黄芪**（图1—7）

Astragalus habamontis. K. T. Fu, sp. nov.

Species *A. leucocephalo* Grah. proxima, sed planta tota pilis adpressis sparse obtecta; foliolis 11-19, obovatis 5-7mm longis; floribus sessilibus, corollis rubentibus c. 11mm longis; leguminibus glabratis distinguitur.

Perennis pulvinalis, pilis adpressis sparsissimis obsita. Caules numerosi diffusi 6—20cm longi, subglabri vel pilis adpressis sparsissime vestiti. Folia imparipinnata, 2.5—6cm longa; stipulae auguste ovatae 5—7mm longae infra medium connatae, apice acutae subglabrae reflexae; foliola 5—9-juga opposita, remota obovata 5—7mm longa 3—4mm lata apice rotunda truncatave emarginata supra glabra subtus sparse adpresse pilifera. Inflorescentiae capitatae 3—5 florae 3—5cm longe pedunculatae foliis breviores aequilongaeve; bracteae lanceolato-subulatae 1.5—2mm longae sparse piliferae. Flores sessiles; calyx campanulatus pilis nigris

adpressis obsitus, tubo 2—2.5mm longo, dentibus subsubulatis 1.5—2.5mm longis; corollae rubentes; vexilla anguste obovata c. 11mm longa c. 5mm lata apice emarginata basi attenuata, unguibus inconspicuis; alae c. 10mm longae, c. 2.5mm longe ungulatae; carinae oblongae c. 8.5mm longae, 3mm longe ungulatae; ovarium glabrum 5-ovuliferum, c. 1.5mm longe stipitatum, stigmate glabro. Legumina anguste ovato-lanceolata, c. 1cm longa glabra plerumque 1-seminalia.

Yunnan: Zhong-dian Xian (中甸县), Haba-xue-shan (哈巴雪山), in declivitate herboso, Feng Guo-mei (冯国楣) 1275 (**Typus** in Herb. Instit. Bot. Kumin. Acad. Sin.), VI, 10, 1939, id. ad pratum herbosum inter saxas in declivitate lapide, 4200*m*, Zhong-dian Exped. (中甸县) 1836, IX, 1, 1962.

本种与白序黄芪 *A. leucocephalus* Grah. 接近，但全株被稀疏贴伏毛；小叶11—19片，倒卵形，长5－7毫米；花无梗，花冠红色，长约11毫米；荚果光滑无毛而不同。

7. **南疆黄芪**（图8—13）

Astragalus nanjiangianus K. T. Fu, sp. nov.

Species *A. oxycdo* Baker proxima, a quo calycibus 4—5mm longis, dentibus c. 2mm longis; vexillis 10mm longis carinis c. 1/3 longioribus; alis carinis longioribus; ovariis salum 2mm longis distingitur.

Perennis, pilis adpressis griseis breviter obsita. Caulis gracilis ascendens decumbensve 10-15cm longus ramosus. Folia imparipinnata 2.5—3cm longa 7—10mm longe petiolulata; stipulae infra medium connatae triangulo-ovatae 3—5mm longae pilis nigris adpressis obtectae vel albis immixtae, apice acutae; foliola 6—8-juga opposita elliptica vel anguste obovato-oblonga 3—4mm longa c. 2mm lata, apice obtusa pilis adpressis supra sparse, subtus dense obsita, subsessilia. Inflorescentiae capitatae spicato-capitataeve 10—15-florae, pedunculatis 3.5—15cm longis foliis longioribus, bracteae lineares 2—3mm longae pilis sparse obsitae. Flores subsessiles; calyx campanulatus pilis ad-

pressis nigris albisque obtectus, tubis c. 2—3mm longis dentibus subulatis c. 2mm longis; vexillum obovatum c. 10mm longum apice emarginatum basi attenuatum ungue inconspicuo; alae c. 9mm longae c. 3mm longe ungulatae; carinae c. 7mm longae c. 3mm longe ungulatae; ovarium pubescens c. 2mm longe stipitatum stigmate glabro. Legumen ignoratum.

Xinjiang: Yu-tian (于田县), ad locos humidos sulci in pratis siccis, 2500m., Ai Zhi-lin (艾志林)120 (**Typus** in Herb. Instit. Bot. Bor. -occ.), VII, 5, 1970; Ho-tian Xian (和田县), pascuum Fung-guang commun. (风光公社牧场), prope rivum, 3200m, Yang Chang-you 750510, 750593, VII, 20, 1975.

本种与尖齿黄芪 *A. oxyodon* Baker 接近，但花萼长4—5毫米，齿长约2毫米；旗瓣长10毫米，较龙骨瓣长约三分之一，翼瓣较龙骨瓣长；子房柄长仅2毫米可区别。

8. **尖齿黄芪**

Astragalus oxyodon Baker in Hook. f. Fl. Brit. Ind. 2: 125. 1876; Ali in Nasir et Ali, Fl. West Pakist. No. 100: 178. 1977.

产**西藏**西部。**模式标本**采自西藏。分布于印度及克什米尔地区。

组Ⅱ. **长喙黄芪组**

Sect. II. **Rostratus** (Boriss.) K. T. Fu, st. nov. —— Subgen. *phaca* Bge. sect. *Brachycarpus* Boriss. ser. *Rostrati* Boriss. in Schischk. Fl. URSS 12: 54. 1946.

本组国产1种。

组的模式种: *Astragalus melanostachys* Benth. ex Bge.

9. **黑穗黄芪**

Astragalus melanostachys Benth. ex Bge. in Mem. Acad. Sci. St. Petersb. VII. 11 (16): 21. 1868 et 15 (1): 22. 1869; Baker in Hook. f. Fl. Brit. Ind. 2: 125. 1876; Boriss in Schischk. Fl. URSS 12: 56. 1946; Ali in Nasir et Ali, Fl. West Pakist. No. 100: 159. 1977——*A. supraglaber* Kitam. in Acta Phytotax. Geobot. 16: 138. 1956——*A. macrostegius* Rech. in K. Danske Vid. Selsk. Biol. Skrift. 9 (3): 37. t. 29, 30. 1958.

产**新疆**西南部和**西藏**；生于山坡草地，海拔4580米。分布于阿富汗、巴基斯坦、印度和克什米尔地区、苏联中亚地区及喜马拉雅山区。**模式标本**产喜马拉雅山区。

新疆标本与本种原始描述和北村四郎的种（*A. supraglaber*）的描述比较，有明显不同之处。而前者茎高45—60厘米，小叶长圆形，花序紧密头形，花冠比花萼长很多（10：5.5）；而后者小叶长圆形，萼齿长很多（3.5：2），旗瓣、翼瓣、龙骨瓣等的比例均长的多（10：7.5：7）。但和*A. macrostegius* Rech. 的原始描述非常近似。因未看到本种的模式和模式产地标本，所以，仍采纳S. I. Ali的归并。

组Ⅲ **密花黄芪组**

Sect. III. **Hypoglottis** Bge. in Mem. Acad. Sci. St. Petersb. VII. 11 (16)：50. 1869——Sect. *Eu-Hypoglottis* Bge. l. c. 1868 et 15 (1)：8. 1869; Boriss. in Schischk. Fl. URSS 12：246. 1946——§. *Hypoglottis* (Bge.) Taub. in Engl. u. Prantl, Nat. Pflanzenfam. III. 3：291. 1894.

本组国产5种和1变种。

10. **毛喉黄芪**

Astragalus dasyglottis Fisch. ex DC. Prodr. 2：282. 1825; Bge. in Mem. Acad. Sci. St. Petersb. VII. 11 (16)：52. 1868 et 15 (1)：84. 1869; Gontsch. et Boriss. in Schischk. Fl. URSS 12：257. 1946.

产**新疆**西部；生于河旁或农地边，海拔1050米。分布于苏联中亚和西伯利亚。**模式标本**产阿尔泰。

11. **乌市黄芪** （图14—19）

Astragalus wulumuqianus Wang et Tang, sp. nov., sub nom. tihwaens.

Species *A. tibetano* Benth. ex Bge. et A. danico Retz. proxima, ab illo calycis dentibus tubo fere aequilongis, ab hoc pedunculis foliisque pilis adpressis obsitis, ab duobus vexillis lineari-cuneatis satis differt.

Herba perennis. Caules ascendentes? 30—60cm alti, pilis adpressis breviter tecti, interdum partibus superioribus ramosi. Folia imparipinnata, 6—12cm longa, glauca breviter petiolata;

stipulae triangulo-lanceolatae 6—7mm longae apice acuminatae ciliares, infra medium connatae; foliola oblonga lanceolato-oblongave 5—19mm longa 2.5—6mm lata, apice rotunda vel emarginata basi late cuneata supra glabra subtus pilis adpressis sparsis breviter obtecta, breviter petiolulata. Inflorescentiae racemoso-capitatae, densatae, c.3cm longae; pedunculi 2.5—6cm longi, pilis adpressis breviter obsiti; bracteae lineari-subulatae c. 3. mm longae ciliatae membranaceae. Calycis tubo campanulato c. 5mm longo pilis adpressis nigris breviter vestito, dentibus c. 4 mm longis pilis adpressis nigris densioribus breviter vestitis, corollae purpureae; vexilla sublanceolata lineari-cuneatave 18mm longa apice emarginata ungue inconspicua; alarum limbi oblongi c. 8mm longi unguibus 7mm longis; carinae limbi latiores c. 5.5 mm longi unguibus c. 7mm longis; ovarium breviter stipitatum, pilis albis semipatenter obtectum; stigmate glabro. Legumina angusto-oblonga 14—16mm longa subtriangula transversaliter reticulata, flav-brunnea, pilis densis albis patenter obtecta 6—10 seminales.

Xinjiang: prope Wulumuqi (乌鲁木齐附近), in agris, 882m., Feng Zhao-nan (冯肇南) 477 (**Typus** in Herb. Instit. Bot. Acad. Sin.), VIII. 15, 1952.

本种与西藏黄芪 *A. tibetanus* Benth. ex Bge. 和丹麦黄芪 *A. danicus* Retz 接近，但与前者的区别在于萼齿和萼筒近等长；与后者的区别在于总花梗和叶均被贴伏毛；与二者共同的不同处在于旗瓣线状楔形。

12. 丹麦黄芪

Astragalus danicus Retz. Observ. Bot. 3 : 41. 1781; Kitag. Lineam. Fl. Mansh. 280. 1939; Gontsch. et Boriss. in Schichk. Fl. URSS 12 : 256. t. 34 (1). 1946; 汪发缵，唐进，中国主要植物图说豆科 412. f. 406 (quoad calycem et petala). 1955; P. Y. Fu et Y. A. Chen, Fl. Pl. Herb. Chin. Bor.-or. 5 : 95. pl. 41 (1—10). 1976——*A. arenarius* auct. non Linn.: DC. Prodr. 2: 281. 1825; Bge. in Mem. Acad. Sci. St. Petersb. VII. 11 (16) : 52. 1868 et 15 (1) : 83. 1869.

产**黑龙江**西南部；生于草地或向阳山坡。分布于蒙古、苏联及欧洲。**模式标本**产丹麦。

13. **西藏黄芪**

Astragalus tibetanus Benth. ex Bge. in Mem. Acad. Sci. St. Petersb.. VII 11 (16): 52. 1868 et 15 (1): 85. 1869; Baker in Hook. f. Fl. Brit. Ind. 2: 124. 1876; Gontsch. et Boriss in Schischk. Fl. URSS 12: 258. 1946; 汪发缵、唐进，中国主要植物图说豆科 411. f. 406 (excl. calyce et petalis). 1955; Rech. f. Symb. Afghan. 3: 39. 1957; Kitam. Fl. Afghan. 193. 1960; Ali in Nasir et Ali, Fl. West Pakist. No. 100: 180. 1977; Ni et Li in Enum. Vasc. Pl. Xizang (Tibet) 183. 1980.

产**新疆**北部、西部及西南部；生于山谷低洼湿地，地埂或山坡草地，海拔830—2450米。**模式标本**采自西藏西部。分布于阿富汗、伊朗、巴基斯坦、克什米尔地区、苏联、蒙古。

本种据 G. Bentham 记载，模式标本产我国西藏西部，但至目前为止，我们尚未在该地区采到可靠标本。

展毛西藏黄芪（新变种）

var. **patentipilus** K. T. Fu, var. nov.

A typo varietatis recedit caulibus, foliis calycibusque pilis setulosis patentis semipatentibusve (non appressis) vestitis.

Xinjiang: Bo-le Xian (博乐县), Wutai ad Guo-zi-gou (五台至果子沟), in pratis prope Sailimu-lacum, 2020m, Zhang Zehn-wan et al. (张振万等) 3189, 13, VII, 1978; ib. in pratis ad crista, 2100m, Zhang Zhen-wan et al. (张振万等) 3218, 13, VII, 1978; Wu-qia Xian (乌恰县), in valle, 3100m, Xinjiang Exped. (新疆队 1743 (**Typus** in Herb. Instit Bot. Bor.-occ.), 29, VII, 1978.

本变种与原变种的区别在于，茎、叶及花萼等被开展或半开展毛，非贴伏毛。

14. **小垫黄芪**

Astragalus pulvinalis P. C. Li et Ni in Acta Phytotax. Sin. 17 (2): 110. f. 11 (1—7). 1979; id. Enum. Vasc. Pl. Xizang (Tibet) 182. 1980.

产西藏西南部；生于碎石山坡，山坡草地或山坡砾石地，海拔4650—5300米。**模式标本**采自普兰拉玛拉依山。

组Ⅳ　**矮茎黄芪组**

Sect. Ⅳ. **Tapinodes** Bge. in Mem. Acad. Sci. St. Petersb. Ⅶ. 11 (16): 47. 1868 et 15 (1): 76. 1869.

本组国产4种。

组的模式种： *Astragalus depressus* L.

15. **定结黄芪**

Astragalus dingjiensis Ni et P. C. Li in Acta Phytotax. Sin. 17 (2): 109. f. 8 (11—20). 1979; id. Enum. Vasc. Pl. Xizang (Tibet) 180. 1980.

产西藏西南部；生于山坡岩石上，海拔4500—5000米。**模式标本**采自定结日屋区。

16. **圆叶黄芪**

Astragalus orbicularifolius P. C. Li et Ni in Acta Phytotax. Sin. 17(2): 112. f. 11(8—16). 1979; id. Enum. Vasc. Pl. Xizang (Tibet) 187. 1980.

产西藏南部；生于山坡砾石或草地，海拔4650—5500米。**模式标本**采自仲巴帕格拉。

17. **长序黄芪**

Astragalus longiscapus P. C. Li et Ni in Acta Phytotax. Sin. 17 (2): 108. f. 8 (1—10). 1979; id. Enum. Vasc. Pl. Xizang (Tibet) 181. 1980.

产西藏南部；生于山坡草地及石滩上，海拔4050—4100米。**模式标本**采自聂拉木张多。

18. **短茎黄芪**

Astragalus malcolmii Hemsl. et Pears. in Journ. Linn. Soc. Bot. 35: 172. 1903; P. C. Li et Ni in Enum. Vasc. Pl. Xizang (Tibet) 181. 1980.

产西藏北部；生于高山地带，海拔5400米。分布于中亚。**模式标本**产中亚。

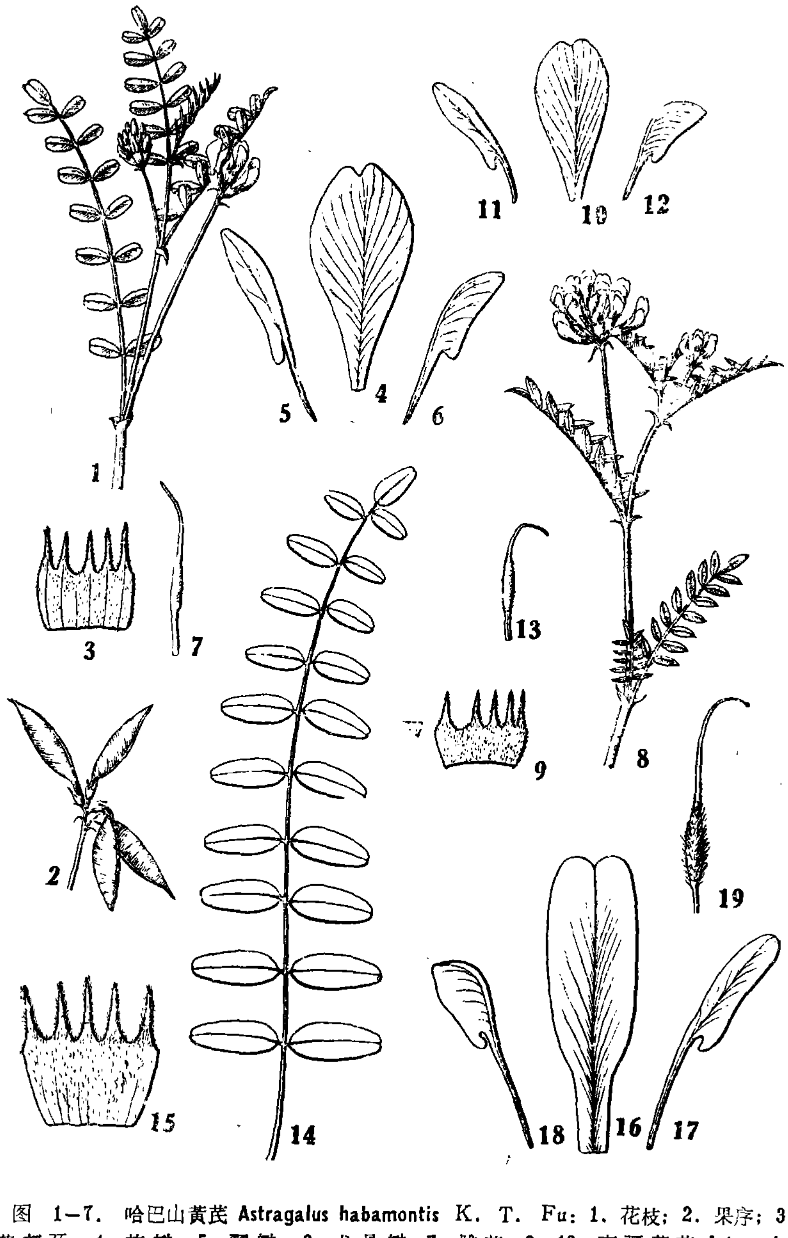


图 1—7．哈巴山黄芪 Astragalus habamontis K. T. Fu：1．花枝；2．果序；3．花萼剖开；4．旗瓣；5．翼瓣；6．龙骨瓣；7．雌蕊。8—13．南疆黄芪 Astragalus nanjiangianus K. T. Fu；8．花枝；9．花萼剖开；10．旗瓣；11．翼瓣；12．龙骨瓣；13．雌蕊。14—19．乌市黄芪 Astragalus wulumuqianus Wang et Tang；14．叶；15．花萼剖开；16．旗瓣；17．翼瓣；18．龙骨瓣；19．雌蕊。（李志民绘）